



## DC-DC Converter Applications

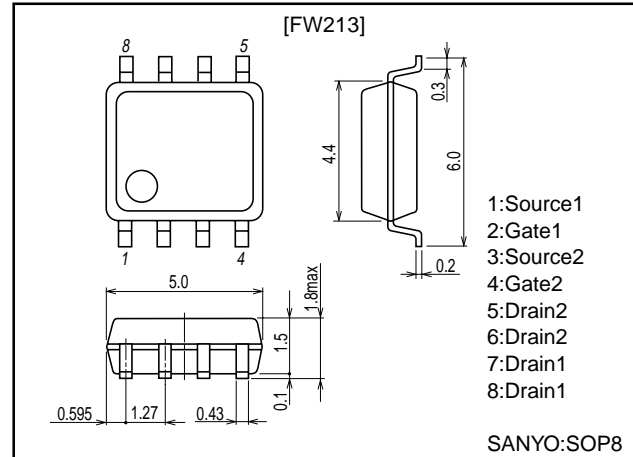
### Features

- Low ON resistance.
- 4V drive.

### Package Dimensions

unit:mm

2129



### Specifications

#### Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DSS}$		30	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 20$	V
Drain Current (DC)	$I_D$		7	A
Drain Current (pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	52	A
Allowable Power Dissipation	$P_D$	Mounted on a ceramic board (1000mm <sup>2</sup> ×0.8mm) 1 unit	1.7	W
Total Dissipation	$P_T$	Mounted on a ceramic board (1000mm <sup>2</sup> ×0.8mm)	2.0	W
Channel Temperature	$T_{ch}$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

#### Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}$ , $V_{GS}=0$	30			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=30\text{V}$ , $V_{GS}=0$			100	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 16\text{V}$ , $V_{DS}=0$			$\pm 10$	$\mu\text{A}$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}$ , $I_D=1\text{mA}$	1.0		2.4	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}$ , $I_D=5\text{A}$	7	10		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=5\text{A}$ , $V_{GS}=10\text{V}$		25	32	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=5\text{A}$ , $V_{GS}=4\text{V}$		37	50	$\text{m}\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=10\text{V}$ , $f=1\text{MHz}$		700		pF
Output Capacitance	$C_{oss}$	$V_{DS}=10\text{V}$ , $f=1\text{MHz}$		380		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=10\text{V}$ , $f=1\text{MHz}$		180		pF

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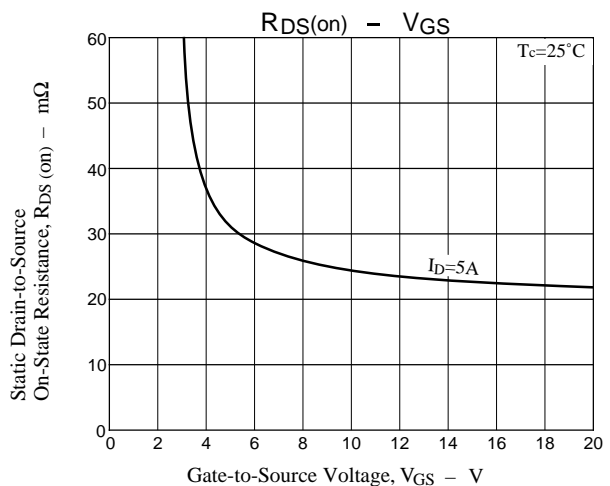
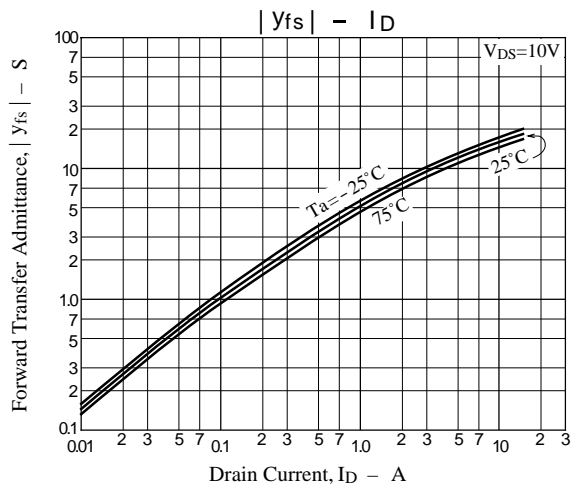
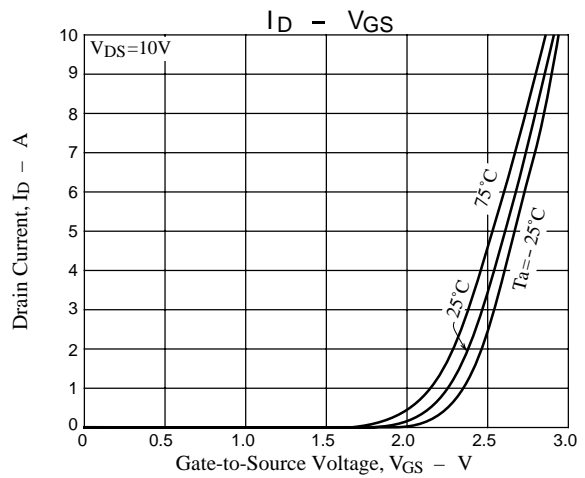
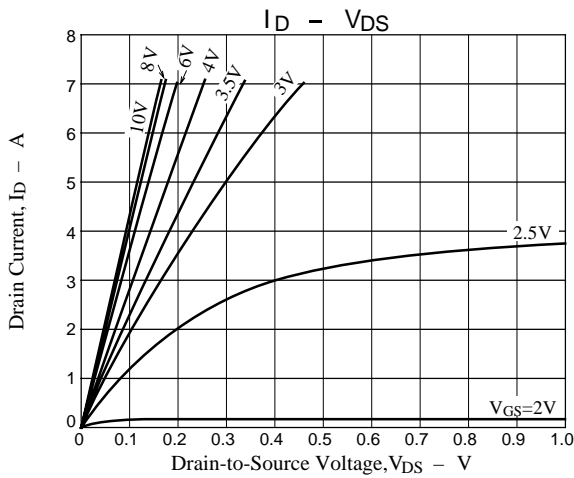
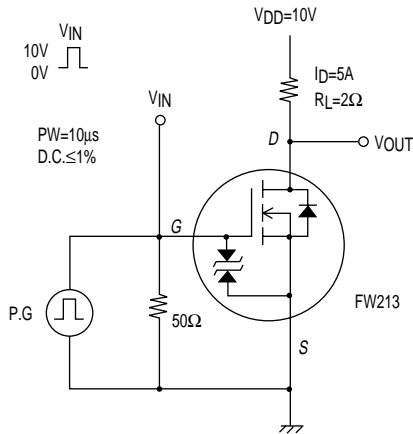
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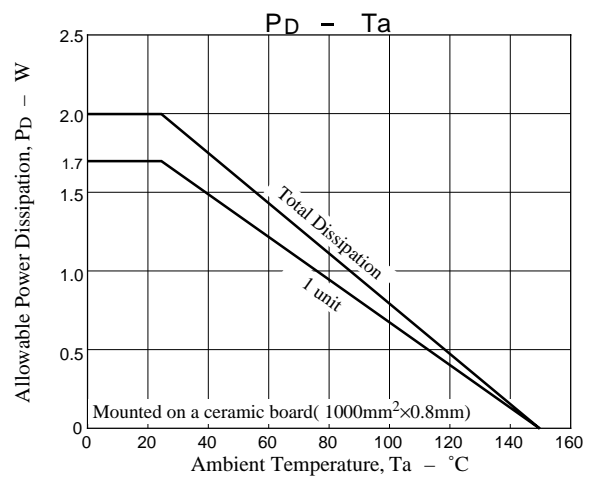
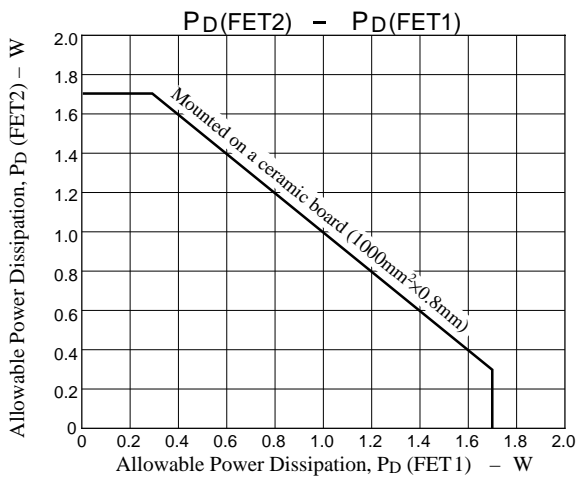
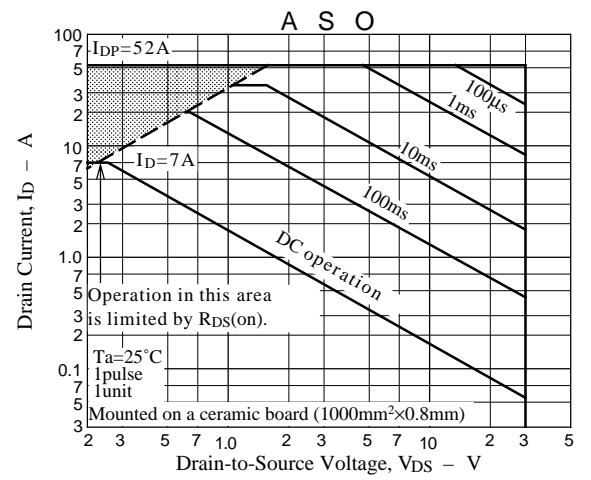
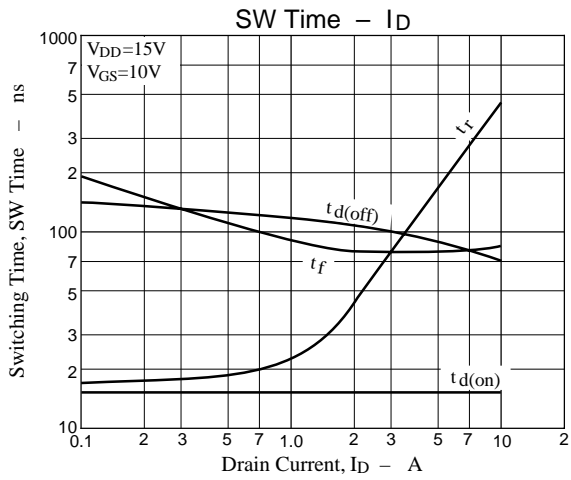
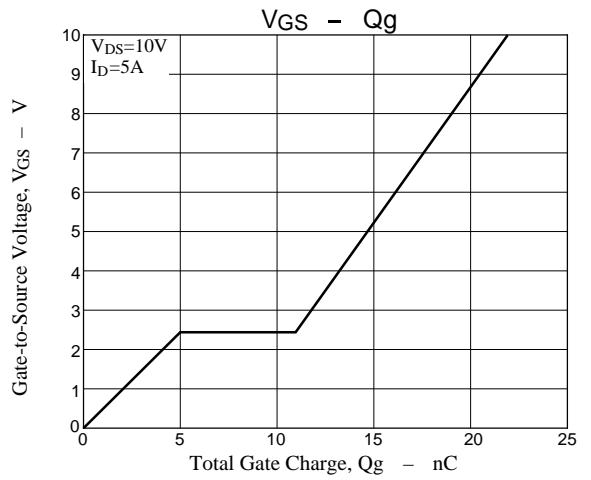
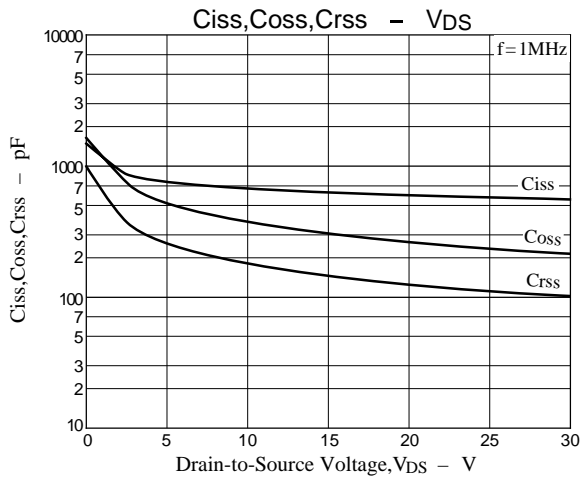
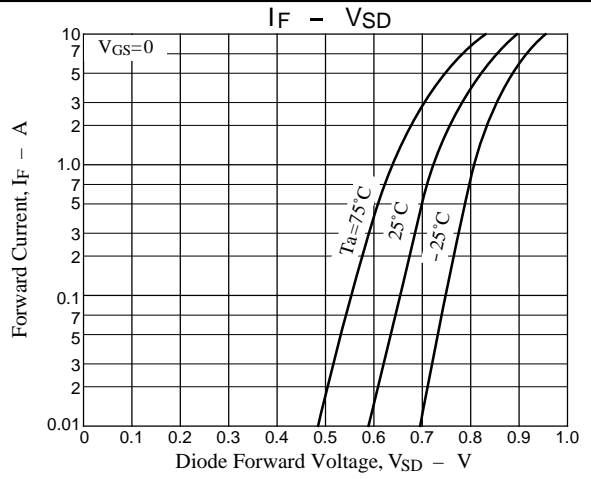
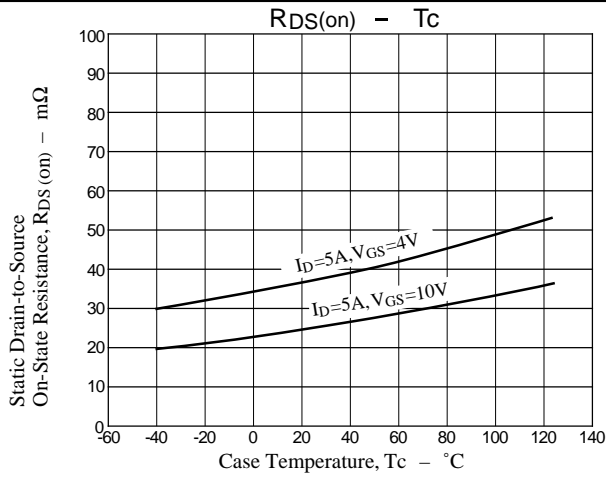
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See Specified Test Circuit		15		ns
Rise Time	$t_r$	See Specified Test Circuit		180		ns
Turn-OFF Delay Time	$t_{d(off)}$	See Specified Test Circuit		90		ns
Fall Time	$t_f$	See Specified Test Circuit		80		ns
Total Gate Charge	Qg	$V_{DS}=10V, V_{GS}=10V, I_D=5A$		22		nC
Gate-to-Source Charge	Qgs			5		nC
Gate-to-Drain "Miller" Charge	Qgd			6		nC
Diode Forward Voltage	$V_{SD}$	$I_S=5A, V_{GS}=0$		1.0	1.2	V

## Switching Time Test Circuit



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